

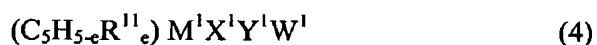
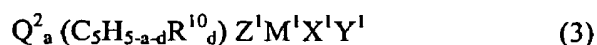
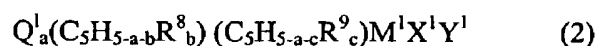
Application No. 09/914,254

Reply to Office Action of January 21, 2004

IN THE CLAIMS

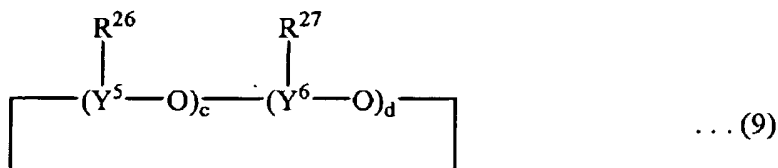
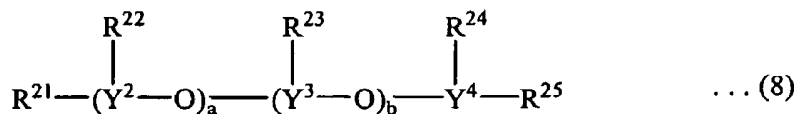
Claim 1 (Currently Amended): A catalyst for copolymerization of olefins and styrenes, which comprises:

(A) a transition metal compound represented by any of the following general formulae (2) to (6):



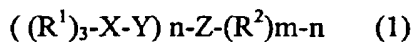
in which Q^1 represents a bonding group that crosslinks the two conjugated five-membered cyclic ligands $(C_5H_{5-a-b}R^8_b)$ and $(C_5H_{5-a-c}R^9_c)$; Q^2 represents a bonding group that crosslinks the conjugated five-membered cyclic ligand $(C_5H_{5-a-d}R^{10}_d)$ and the group Z^1 ; R^8 , R^9 , R^{10} and R^{11} each represent a hydrocarbon group, a halogen atom, an alkoxy group, a silicon-containing hydrocarbon group, a phosphorus-containing hydrocarbon group, a nitrogen-containing hydrocarbon group, or a boron-containing hydrocarbon group; and a plurality of these groups, if any, may be the same or different, and may be bonded to each other to form a cyclic structure; a represents 0, 1 or 2; b, c and d each represent an integer of from 0 to 5 when a = 0, or an integer of from 0 to 4 when a = 1, or an integer of from 0 to 3 when a = 2; e is an integer of from 0 to 5; M^1 represents a transition metal of Groups 4 to 6 of the Periodic Table; M^2 represents a transition metal of Groups 8 to 10 of the Periodic Table; L^1 and L^2 each represent a coordination-bonding ligand; X^1 , Y^1 , Z^1 , W^1 and U^1 each represent a covalent-bonding or ionic-bonding ligand; and L^1 , L^2 , X^1 , Y^1 , Z^1 , W^1 and U^1 may be bonded to each other to form a cyclic structure,

(B) an oxygen-containing compound represented by any of the following general formulae (8) to (9):



wherein R^{21} to R^{27} each represent an alkyl group having from 1 to 8 carbon atoms and may be the same or different, and R^{26} and R^{27} may be the same or different. Y^2 to Y^6 each represent an element of Group 13 of the Periodic Table, Y^2 to Y^4 may be the same or different; and Y^5 and Y^6 may be the same or different, a to d each indicates a number of from 0 to 50, but $(a+b)$ and $(c+d)$ each must be at least 1,

(C) a compound of a general formula (1):

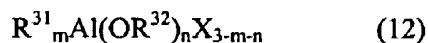


wherein R^1 ~~represents a hydrogen atom, a halogen atom, an aliphatic hydrocarbon group having from 1 to 30 carbon atoms, an aromatic hydrocarbon group having from 6 to 30 carbon atoms, an alkoxy group having from 1 to 30 carbon atoms, an aryloxy group having from 6 to 30 carbon atoms, a thioalkoxy group having from 1 to 30 carbon atoms, a thioaryloxy group having from 6 to 30 carbon atoms, an amino group, an amide group, or a carboxyl group, R^1 's may be the same or different, and R^1 's may be optionally bonded to each~~

~~ether to form a cyclic structure~~ a phenyl group; X represents an element of Group 14; Y represents an element of Group 16; Z represents a metal element of Groups 2 to 13; R² represents a hydrocarbon group; m is an integer, indicating the valency of the metal element Z; and n is an integer of from 1 to (m-1),

and optionally,

(D) an alkylating agent represented by any of the following general formulae (12) to (14):



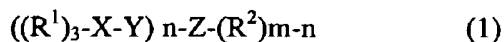
wherein R³¹ and R³² each represent an alkyl group having from 1 to 8 carbon atoms; X represents a hydrogen atom or a halogen atom, 0 < m ≤ 3, 0 ≤ n < 3.

Currently Amended

Claim 2 (~~Withdrawn~~): A catalyst for copolymerization of olefins and styrenes, which comprises:

(A) a transition metal compound,

(C) a compound of a general formula (1):



wherein R¹ represents ~~a hydrogen atom, a halogen atom, an aliphatic hydrocarbon group having from 1 to 30 carbon atoms, an aromatic hydrocarbon group having from 6 to 30 carbon atoms, an alkoxy group having from 1 to 30 carbon atoms, an aryloxy group having from 6 to 30 carbon atoms, a thioalkoxy group having from 1 to 30 carbon atoms, a thioaryloxy group having from 6 to 30 carbon atoms, an amino group, an amido group, or a carboxyl group, R¹'s may be the same or different, and R¹'s may be optionally bonded to each other to form a cyclic structure~~ a phenyl group; X represents an element of Group 14; Y represents an

element of Group 16; Z represents a metal element of Groups 2 to 13; R^2 represents a hydrocarbon group; m is an integer, indicating the valency of the metal element Z; and n is an integer of from 1 to (m-1),

and optionally,

(D) an alkylating agent.

Claim 3 (Previously Presented): The catalyst as claimed in claim 1 for copolymerization of olefins and styrenes, wherein, in (C), X is carbon, Y is oxygen and Z is aluminium.

Claim 4 (Currently Amended): The catalyst as claimed in claim 1 for copolymerization of olefins and styrenes, wherein the compound (C) is a reaction product of <1> at least one selected from compounds of a general formula, $(R^1)_3-C-OR^3$, R^4-CO-R^5 or $R^6-CO-OR^7$, with <2> a compound of a general formula, $Z (R^2)_m$, wherein R^1 represents a phenyl group, R^3 , R^4 , R^5 , R^6 and R^7 each represent a hydrogen atom, a halogen atom, an aliphatic hydrocarbon group having from 1 to 30 carbon atoms, an aromatic hydrocarbon group having from 6 to 30 carbon atoms, an alkoxy group having from 1 to 30 carbon atoms, an aryloxy group having from 6 to 30 carbon atoms, a thioalkoxy group having from 1 to 30 carbon atoms, a thioaryloxy group having from 6 to 30 carbon atoms, an amino group, an amido group, or a carboxyl group, and $[[R^1,]] R^3$, R^4 , R^5 , R^6 and R^7 may be the same or different, and $[[R^1,]] R^3$, R^4 , R^5 , R^6 and R^7 may be optionally bonded to each other to form a cyclic structure; Z represents a metal element of Groups 2 to 13; m is an integer, indicating the valency of the metal element Z; and R^2 represents a hydrocarbon group.

Currently Amended
Claim 5 (~~Withdrawn~~): A catalyst for copolymerization of olefins and styrenes, which comprises:

- (A) a transition metal compound,
- (B) an oxygen-containing compound, and/or a compound capable of reacting with a transition metal compound to form an ionic complex,
- (C1) at least one selected from compounds of a general formula, $(R^1)_3-C-OR^3$, R^4-CO-R^5 or $R^6-CO-OR^7$ (In these formulae, R^1 ^{*represents a phenyl group*}, R^3 , R^4 , R^5 , R^6 and R^7 each represent a hydrogen atom, a halogen atom, an aliphatic hydrocarbon group having from 1 to 30 carbon atoms, an aromatic hydrocarbon group having from 6 to 30 carbon atoms, an alkoxy group having from 1 to 30 carbon atoms, an aryloxy group having from 6 to 30 carbon atoms, a thioalkoxy group having from 1 to 30 carbon atoms, a thioaryloxy group having from 6 to 30 carbon atoms, an amino group, an amido group, or a carboxyl group, and $[R^1]$, R^3 , R^4 , R^5 , R^6 and R^7 may be the same different, and $[R^1]$, R^3 , R^4 , R^5 , R^6 and R^7 may be optionally bonded to each other to form a cyclic structure.)

(C2) a compound of a general formula, $Z(R^2)_m$. (In this formula; Z represents a metal element of Groups 2 to 13; m is an integer, indicating the valency of the metal element Z; and R^2 represents a hydrocarbon group, and optionally,

- (D) an alkylating agent.

Currently Amended
Claim 6 (~~Withdrawn~~): A catalyst for copolymerization of olefins and styrenes, which comprises:

- (A) a transition metal compound,
- (C1) at least one selected from compounds of a general formula, $(R^1)_3-C-OR^3$, R^4-CO-R^5 or $R^6-CO-OR^7$ (In these formulae, R^1 ^{*represents a phenyl group*}, R^3 , R^4 , R^5 , R^6 and R^7 each represent a hydrogen

atom, a halogen atom, an aliphatic hydrocarbon group having from 1 to 30 carbon atoms, an aromatic hydrocarbon group having from 6 to 30 carbon atoms, an alkoxy group having from 1 to 30 carbon atoms, an thioaryloxy group having from 6 to 30 carbon atoms, a thioalkoxy group having from 1 to 30 carbon atoms, a thioaryloxy group having from 6 to 30 carbon atoms, an amino group, an amido group, or a carboxyl group, and R^1 , R^3 , R^4 , R^5 , R^6 and R^7 may be the same or different, and R^1 , R^3 , R^4 , R^5 , R^6 and R^7 maybe optionally bonded to each other to form a cyclic structure.

(C2) a compound of a general formula, $Z(R^2)_m$, wherein Z represents a metal element of Groups 2 to 13; m is a integer, indicating the valency of the metal element Z; and R^2 represents a hydrocarbon group,

and optionally,

(D) an alkylating agent.

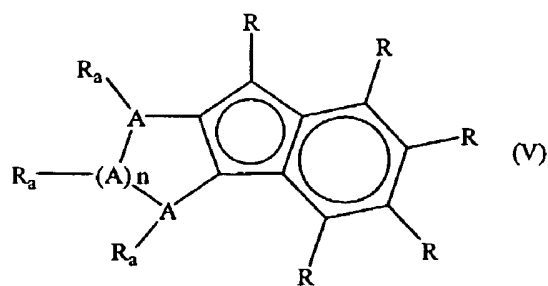
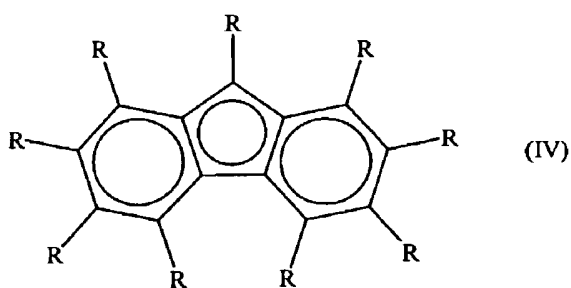
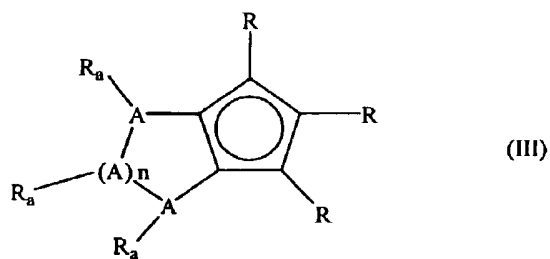
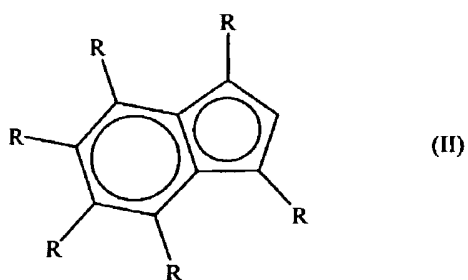
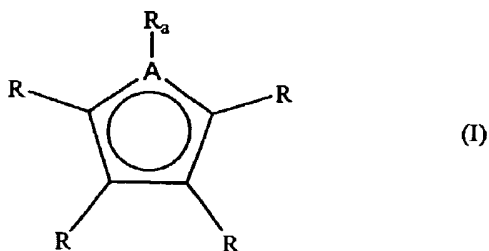
Claims 7-9 (Canceled).

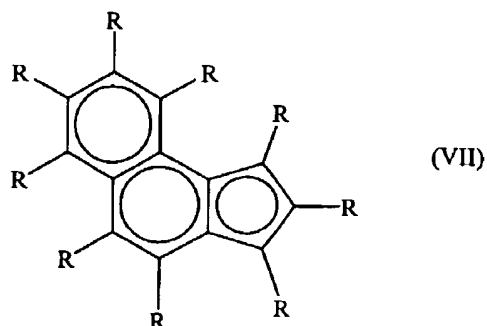
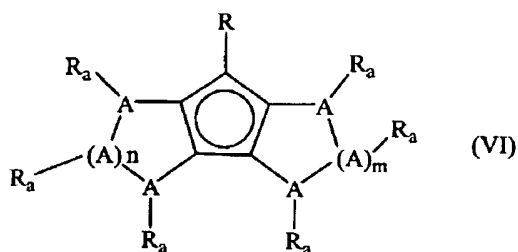
Claim 10 (Previously Presented): The catalyst as claimed in claim 1 for copolymerization of olefins and styrenes, wherein R^2 is an alkyl group having at least 2 carbon atoms.

Claim 11 (Previously Presented): The catalyst as claimed in claim 4 for copolymerization of olefins and styrenes, wherein Z is aluminium.

Claim 12 (Canceled).

Claim 13 (Previously Presented): The catalyst as claimed in claim 1 for copolymerization of olefins and styrenes, wherein, in the transition metal compound (A) of formula (4), the group $(C_5H_5-εR^{11})_ε$ is represented by any of the following general formulae (I) to (VII):





wherein A represents an element of Group 13, 14, 15 or 16, and plural A's may be the same or different; R represents a hydrogen atom, a halogen atom, an aliphatic hydrocarbon group having from 1 to 30 carbon atoms, an aromatic hydrocarbon group having from 6 to 30 carbon atoms, an alkoxy group having from 1 to 30 carbon atoms, an aryloxy group having from 6 to 30 carbon atoms, a thioalkoxy group having from 1 to 30 carbon atoms, a thioaryloxy group having from 6 to 30 carbon atoms, an amino group, an amido group, a carboxyl group, or an alkylsilyl or alkylsilylalkyl group having from 3 to 30 carbon atoms, and R's may be the same or different, and may be optionally bonded to each other to form a cyclic structure; a represents 0, 1 or 2; and n and m each represent an integer of at least 1.

Claim 14 (Previously Presented): A method for producing olefin-styrene copolymers, which comprises polymerizing olefins and styrenes in the presence of the copolymerization catalyst of claim 1.

Original
 Claim 15 (~~Withdrawn~~): The catalyst as claimed in claim 2 for copolymerization of olefins and styrenes, wherein, in (C), X is carbon, Y is oxygen and Z is aluminium.

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Currently Amended

Claim 16 (~~Withdrawn~~): The catalyst as claimed in claim 2 for copolymerization of olefins and styrenes, wherein the compound (C) is a reaction product of <1> at least one selected from compounds of a general formula, $(R^1)_3-C-OR^3$, R^4-CO-R^5 or $R^6-CO-OR^7$, with <2> a compound of a general formula, $Z(R^2)_m$. (In these formulae, R^1 ^{represents a phenyl group}, R^3 , R^4 , R^5 , R^6 and R^7 each represent a hydrogen atom, a halogen atom, an aliphatic hydrocarbon group having from 1 to 30 carbon atoms, an aromatic hydrocarbon group having from 6 to 30 carbon atoms, an alkoxy group having from 1 to 30 carbon atoms, an aryloxy group having from 6 to 30 carbon atoms, a thioalkoxy group having from 1 to 30 carbon atoms, a thioaryloxy group having from 6 to 30 carbon atoms, an amino group, an amido group, or a carboxyl group, and $[R^1]R^3$, R^4 , R^5 , R^6 and R^7 may be the same or different, and $[R^1]R^3$, R^4 , R^5 , R^6 and R^7 may be optionally bonded to each other to form a cyclic structure; Z represents a metal element of Groups 2 to 13; m is an integer, indicating the valency of the metal element Z; and R^2 represents a hydrocarbon group.)

Cancelled

Claim 17 (~~Withdrawn~~): ~~The catalyst as claimed in claim 2 for copolymerization of olefins and styrenes, wherein at least one of three R^1 's is an aromatic hydrocarbon group having from 6 to 30 carbon atoms.~~

Cancelled

Claim 18 (~~Withdrawn~~): ~~The catalyst as claimed in claim 5 for copolymerization of olefins and styrenes, wherein at least one of three R^1 's is an aromatic hydrocarbon group having from 6 to 30 carbon atoms.~~

Cancelled

Claim 19 (~~Withdrawn~~): ~~The catalyst as claimed in claim 6 for copolymerization of olefins and styrenes, wherein at least one of three R^1 's is an aromatic hydrocarbon group having from 6 to 30 carbon atoms.~~

Cancelled
Claim 20 (Withdrawn): ~~The catalyst as claimed in claim 2 for copolymerization of olefins and styrenes, wherein three R¹'s are all aromatic hydrocarbon groups each having from 6 to 30 carbon atoms.~~

Cancelled
Claim 21 (Withdrawn): ~~The catalyst as claimed in claim 5 for copolymerization of olefins and styrenes, wherein three R¹'s are all aromatic hydrocarbon groups each having from 6 to 30 carbon atoms.~~

Cancelled
Claim 22 (Withdrawn): ~~The catalyst as claimed in claim 6 for copolymerization of olefins and styrenes, wherein three R¹'s are all aromatic hydrocarbon groups each having from 6 to 30 carbon atoms.~~

Cancelled
Claim 23 (Withdrawn): ~~The catalyst as claimed in claim 2 for copolymerization of olefins and styrenes, wherein three R¹'s are all phenyl groups.~~

Cancelled
Claim 24 (Withdrawn): ~~The catalyst as claimed in claim 5 for copolymerization of olefins and styrenes, wherein three R¹'s are all phenyl groups.~~

Cancelled
Claim 25 (Withdrawn): ~~The catalyst as claimed in claim 6 for copolymerization of olefins and styrenes, wherein three R¹'s are all phenyl groups.~~

Original
Claim 26 (Withdrawn): The catalyst as claimed in claim 2 for copolymerization of olefins and styrenes, wherein R² is an alkyl group having at least 2 carbon atoms.

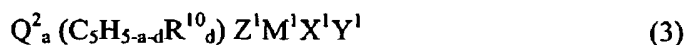
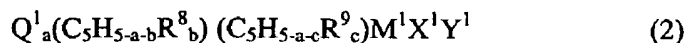
Claim 27 (^{Original}~~Withdrawn~~): The catalyst as claimed in claim 5 for copolymerization of olefins and styrenes, wherein R^2 is an alkyl group having at least 2 carbon atoms.

Claim 28 (^{Original}~~Withdrawn~~): The catalyst as claimed in claim 6 for copolymerization of olefins and styrenes, wherein R^2 is an alkyl group having at least 2 carbon atoms.

Claim 29 (^{Original}~~Withdrawn~~): The catalyst as claimed in claim 5 for copolymerization of olefins and styrenes, wherein Z is aluminium.

Claim 30 (^{Original}~~Withdrawn~~): The catalyst as claimed in claim 6 for copolymerization of olefins and styrenes, wherein Z is aluminium.

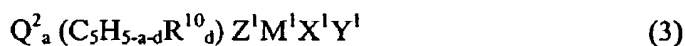
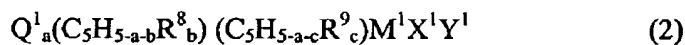
Claim 31 (^{Original}~~Withdrawn~~): The catalyst as claimed in claim 2 for copolymerization of olefins and styrenes, wherein the transition metal compound (A) is represented by any of the following general formulae (2) to (6):



in which Q^1 represents a bonding group that crosslinks the two conjugated five-membered cyclic ligands $(C_5H_{5-a-b}R^8{}_b)$ and $(C_5H_{5-a-c}R^9{}_c)$; Q^2 represents a bonding group that crosslinks the conjugated five-membered cyclic ligand $(C_5H_{5-a-d}R^{10}{}_d)$ and the group Z^1 ; R^8 , R^9 , R^{10} and R^{11} each represent a hydrocarbon group, a halogen atom, an alkoxy group, a silicon-containing hydrocarbon group, a phosphorus-containing hydrocarbon group, a nitrogen-

containing hydrocarbon group, or a boron-containing hydrocarbon group; and a plurality of these groups, if any, may be the same or different, and may be bonded to each other to form a cyclic structure; a represents 0, 1 or 2; b, c and d each represent an integer of from 0 to 5 when a = 0, or an integer of from 0 to 4 when a = 1, or an integer of from 0 to 3 when a = 2; e is an integer of from 0 to 5; M¹ represents a transition metal of Groups 4 to 6 of the Periodic Table; M² represents a transition metal of Groups 8 to 10 of the Periodic Table; L¹ and L² each represent a coordination-bonding ligand; X¹, Y¹, Z¹, W¹ and U¹ each represent a covalent-bonding or ionic-bonding ligand; and L¹, L², X¹, Y¹, Z¹, W¹ and U¹ may be bonded to each other to form a cyclic structure.

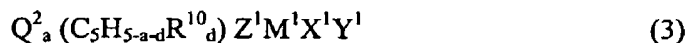
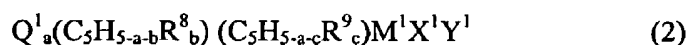
~~Original~~
 Claim 32 (Withdrawn): The catalyst as claimed in claim 5 for copolymerization of olefins and styrenes, wherein the transition metal compound (A) is represented by any of the following general formulae (2) to (6):



in which Q¹ represents a bonding group that crosslinks the two conjugated five-membered cyclic ligands (C₅H_{5-a-b}R⁸_b) and (C₅H_{5-a-c}R⁹_c); Q² represents a bonding group that crosslinks the conjugated five-membered cyclic ligand (C₅H_{5-a-d}R¹⁰_d) and the group Z¹; R⁸, R⁹, R¹⁰ and R¹¹ each represent a hydrocarbon group, a halogen atom, an alkoxy group, a silicon-containing hydrocarbon group, a phosphorus-containing hydrocarbon group, a nitrogen-containing hydrocarbon group, or a boron-containing hydrocarbon group; and a plurality of these groups, if any, may be the same or different, and may be bonded to each other to form a

cyclic structure; a represents 0, 1 or 2; b, c and d each represent an integer of from 0 to 5 when a = 0, or an integer of from 0 to 4 when a = 1, or an integer of from 0 to 3 when a = 2; e is an integer of from 0 to 5; M¹ represents a transition metal of Groups 4 to 6 of the Periodic Table; M² represents a transition metal of Groups 8 to 10 of the Periodic Table; L¹ and L² each represent a coordination-bonding ligand; X¹, Y¹, Z¹, W¹ and U¹ each represent a covalent-bonding or ionic-bonding ligand; and L¹, L², X¹, Y¹, Z¹, W¹ and U¹ may be bonded to each other to form a cyclic structure.

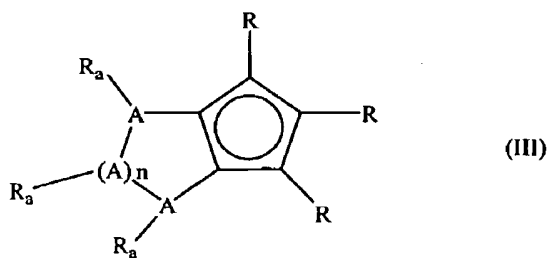
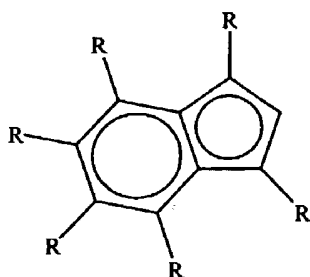
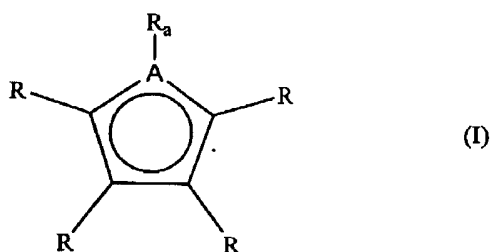
Claim 33 (^{Original} ~~Withdrawn~~): The catalyst as claimed in claim 6 for copolymerization of olefins and styrenes, wherein the transition metal compound (A) is represented by any of the following general formulae (2) to (6):

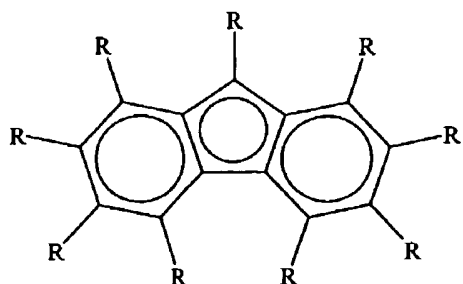


in which Q¹ represents a bonding group that crosslinks the two conjugated five-membered cyclic ligands (C₅H_{5-a-b}R⁸_b) and (C₅H_{5-a-c}R⁹_c); Q² represents a bonding group that crosslinks the conjugated five-membered cyclic ligand (C₅H_{5-a-d}R¹⁰_d) and the group Z¹; R⁸, R⁹, R¹⁰ and R¹¹ each represent a hydrocarbon group, a halogen atom, an alkoxy group, a silicon-containing hydrocarbon group, a phosphorus-containing hydrocarbon group, a nitrogen-containing hydrocarbon group, or a boron-containing hydrocarbon group; and a plurality of these groups, if any, may be the same or different, and may be bonded to each other to form a cyclic structure; a represents 0, 1 or 2; b, c and d each represent an integer of from 0 to 5 when a = 0, or an integer of from 0 to 4 when a = 1, or an integer of from 0 to 3 when a = 2; e

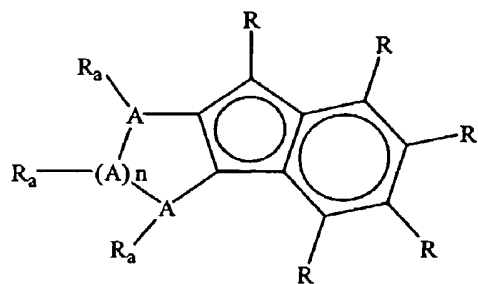
is an integer of from 0 to 5; M^1 represents a transition metal of Groups 4 to 6 of the Periodic Table; M^2 represents a transition metal of Groups 8 to 10 of the Periodic Table; L^1 and L^2 each represent a coordination-bonding ligand; X^1 , Y^1 , Z^1 , W^1 and U^1 each represent a covalent-bonding or ionic-bonding ligand; and L^1 , L^2 , X^1 , Y^1 , Z^1 , W^1 and U^1 may be bonded to each other to form a cyclic structure.

~~Claim 34 (Withdrawn)~~ ^{original}: The catalyst as claimed in claim 2 for copolymerization of olefins and styrenes, wherein, in the transition metal compound (A) of formula (4), the group $(C_5H_5-eR^{11})_e$ is represented by any of the following general formulae (I) to (VII):

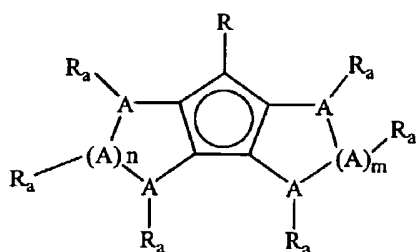




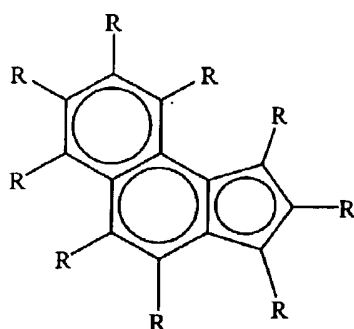
(IV)



(V)



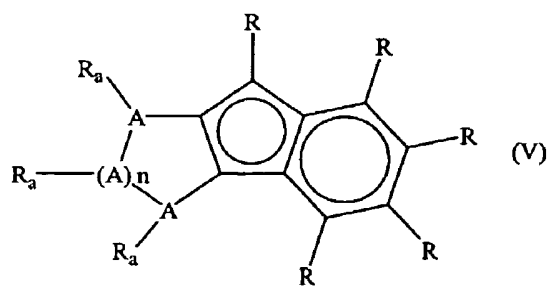
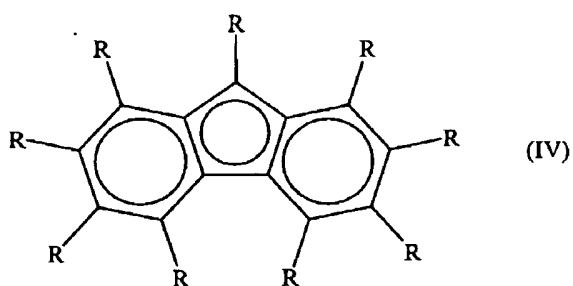
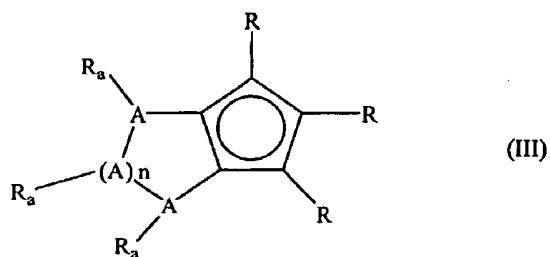
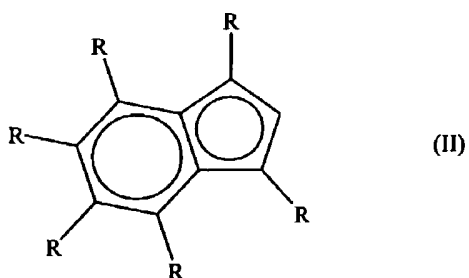
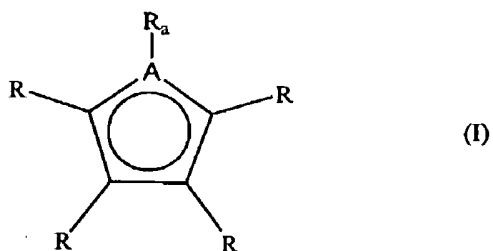
(VI)

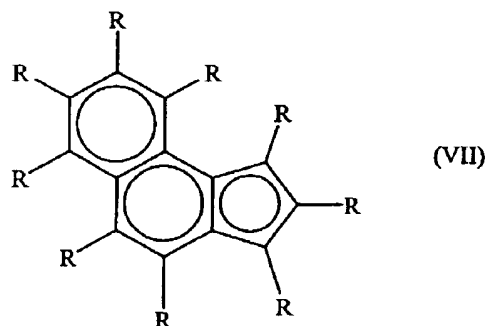
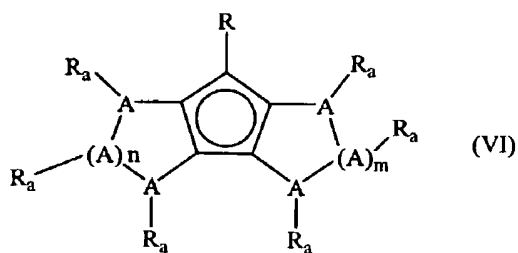


(VII)

wherein A represents an element of Group 13, 14, 15 or 16, and plural A's may be the same or different; R represents a hydrogen atom, a halogen atom, an aliphatic hydrocarbon group having from 1 to 30 carbon atoms, an aromatic hydrocarbon group having from 6 to 30 carbon atoms, an alkoxy group having from 1 to 30 carbon atoms, an aryloxy group having from 6 to 30 carbon atoms, a thioalkoxy group having from 1 to 30 carbon atoms, a thioaryloxy group having from 6 to 30 carbon atoms, an amino group, an amido group, a carboxyl group, or an alkylsilyl or alkylsilylalkyl group having from 3 to 30 carbon atoms, and R's may be the same or different, and may be optionally bonded to each other to form a cyclic structure; a represents 0, 1 or 2; and n and m each represent an integer of at least 1.

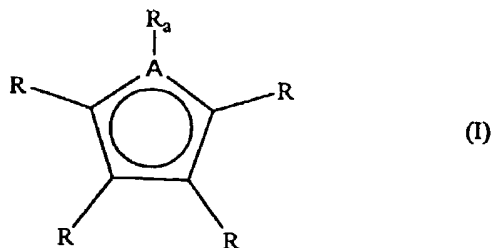
Claim 35 ^{original} (~~Withdrawn~~): The catalyst as claimed in claim 5 for copolymerization of olefins and styrenes, wherein, in the transition metal compound (A) of formula (4), the group $(C_5H_5R^{11})$ is represented by any of the following general formulae (I) to (VII):

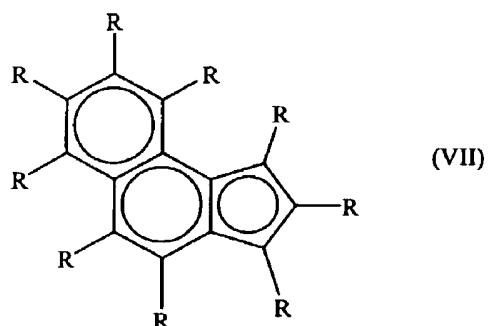
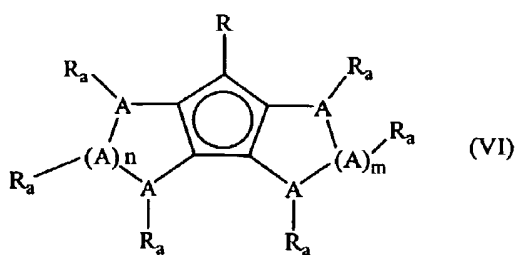
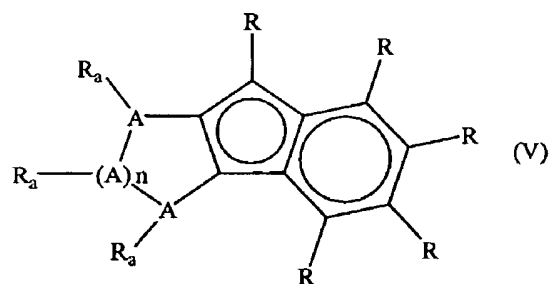
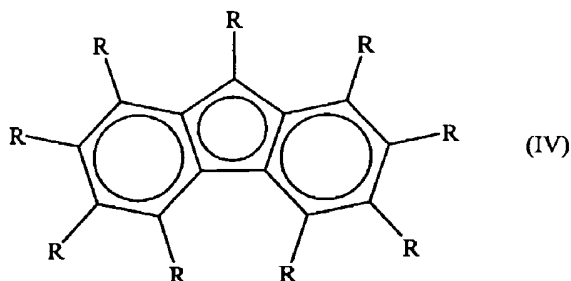
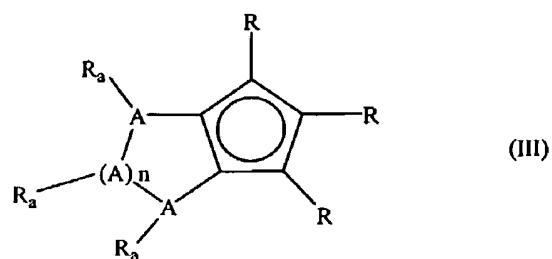
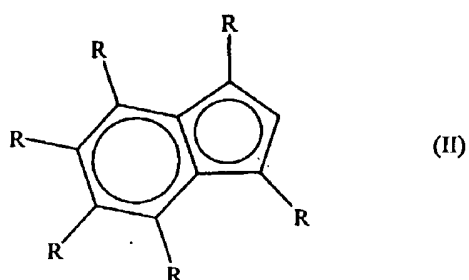




wherein A represents an element of Group 13, 14, 15 or 16, and plural A's may be the same or different; R represents a hydrogen atom, a halogen atom, an aliphatic hydrocarbon group having from 1 to 30 carbon atoms, an aromatic hydrocarbon group having from 6 to 30 carbon atoms, an alkoxy group having from 1 to 30 carbon atoms, an aryloxy group having from 6 to 30 carbon atoms, a thioalkoxy group having from 1 to 30 carbon atoms, a thioaryloxy group having from 6 to 30 carbon atoms, an amino group, an amido group, a carboxyl group, or an alkylsilyl or alkylsilylalkyl group having from 3 to 30 carbon atoms, and R's may be the same or different, and may be optionally bonded to each other to form a cyclic structure; a represents 0, 1 or 2; and n and m each represent an integer of at least 1.

~~Original~~
~~Claim 36 (Withdrawn)~~: The catalyst as claimed in claim 6 for copolymerization of olefins and styrenes, wherein, in the transition metal compound (A) of formula (4), the group $(C_5H_5\epsilon R^{11})_e$ is represented by any of the following general formulae (I) to (VII):





wherein A represents an element of Group 13, 14, 15 or 16, and plural A's may be the same or different; R represents a hydrogen atom, a halogen atom, an aliphatic hydrocarbon group having from 1 to 30 carbon atoms, an aromatic hydrocarbon group having from 6 to 30 carbon atoms, an alkoxy group having from 1 to 30 carbon atoms, an aryloxy group having from 6 to 30 carbon atoms, a thioalkoxy group having from 1 to 30 carbon atoms, a

thioaryloxy group having from 6 to 30 carbon atoms, an amino group, an amido group, a carboxyl group, or an alkylsilyl or alkylsilylalkyl group having from 3 to 30 carbon atoms, and R's may be the same or different, and may be optionally bonded to each other to form a cyclic structure; a represents 0, 1 or 2; and n and m each represent an integer of at least 1.

Claim 37 ^{original} (~~Withdrawn~~): A method for producing olefin-styrene copolymers, which comprises polymerizing olefins and styrenes in the presence of the copolymerization catalyst of claim 2.

Claim 38 ^{original} (~~Withdrawn~~): A method for producing olefin-styrene copolymers, which comprises polymerizing olefins and styrenes in the presence of the copolymerization catalyst of claim 5.

Claim 39 ^{original} (~~Withdrawn~~): A method for producing olefin-styrene copolymers, which comprises polymerizing olefins and styrenes in the presence of the copolymerization catalyst of claim 6.